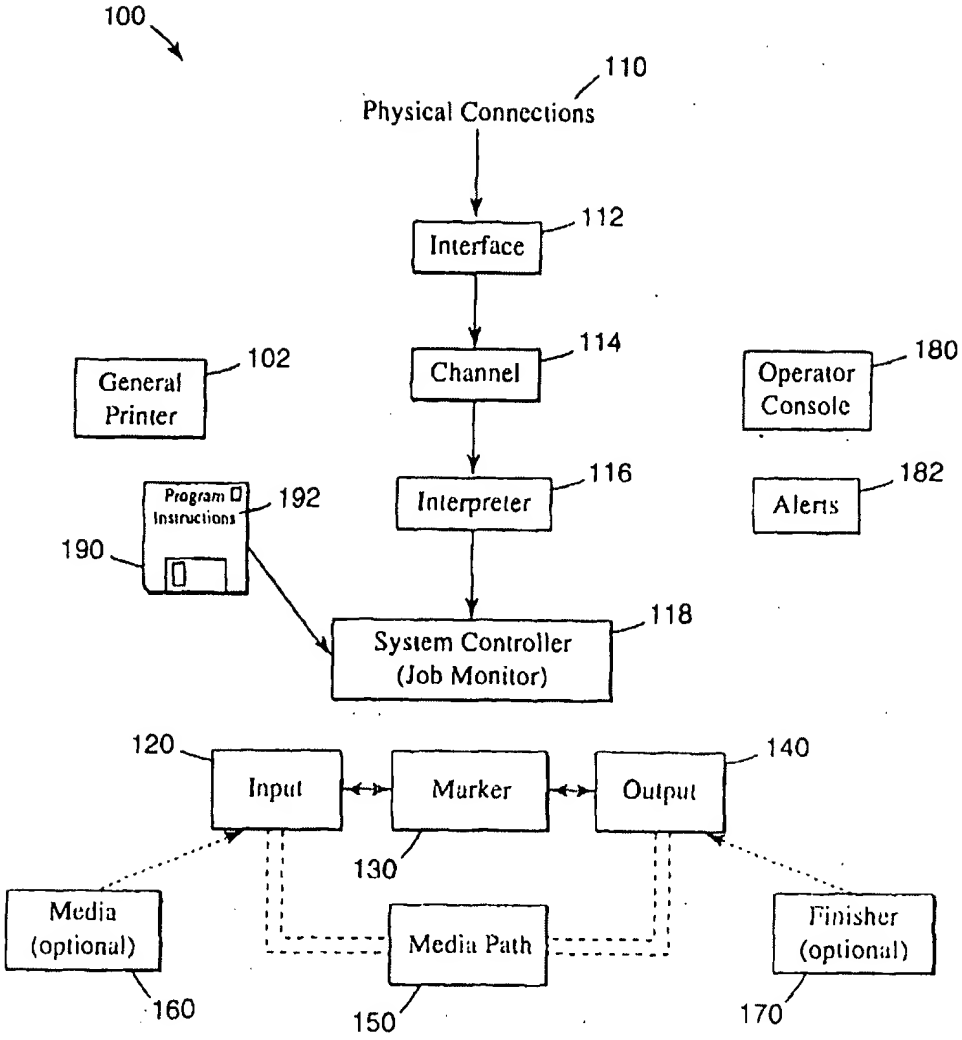

100
110
Physical Connections
112
Interface
114
Channel
102
General Printer
180
Operator Console
116
Interpreter
182
Alerts
192
Program Instructions
190
118
System Controller (Job Monitor)
120
Input
Marker
Output
140
130
Media (optional)
Media Path
Finisher (optional)
160
150
170

Fig. 1

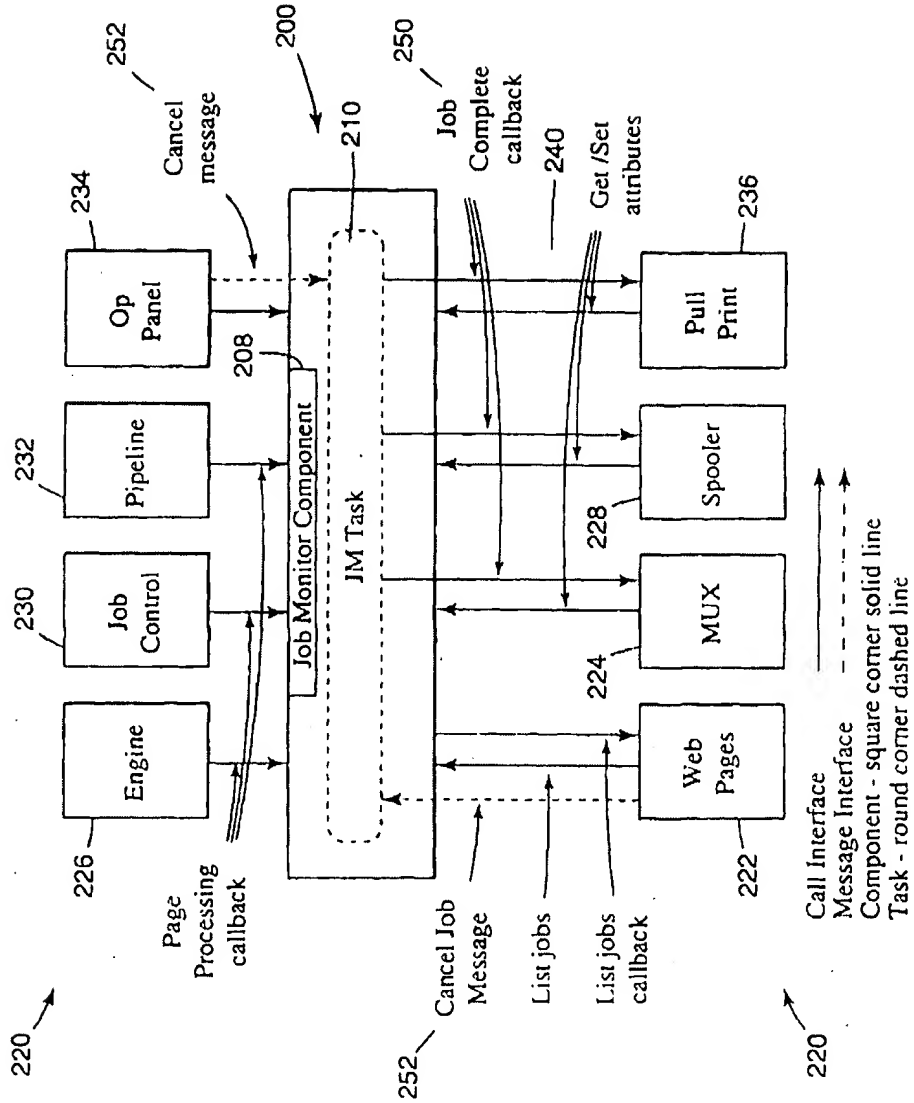
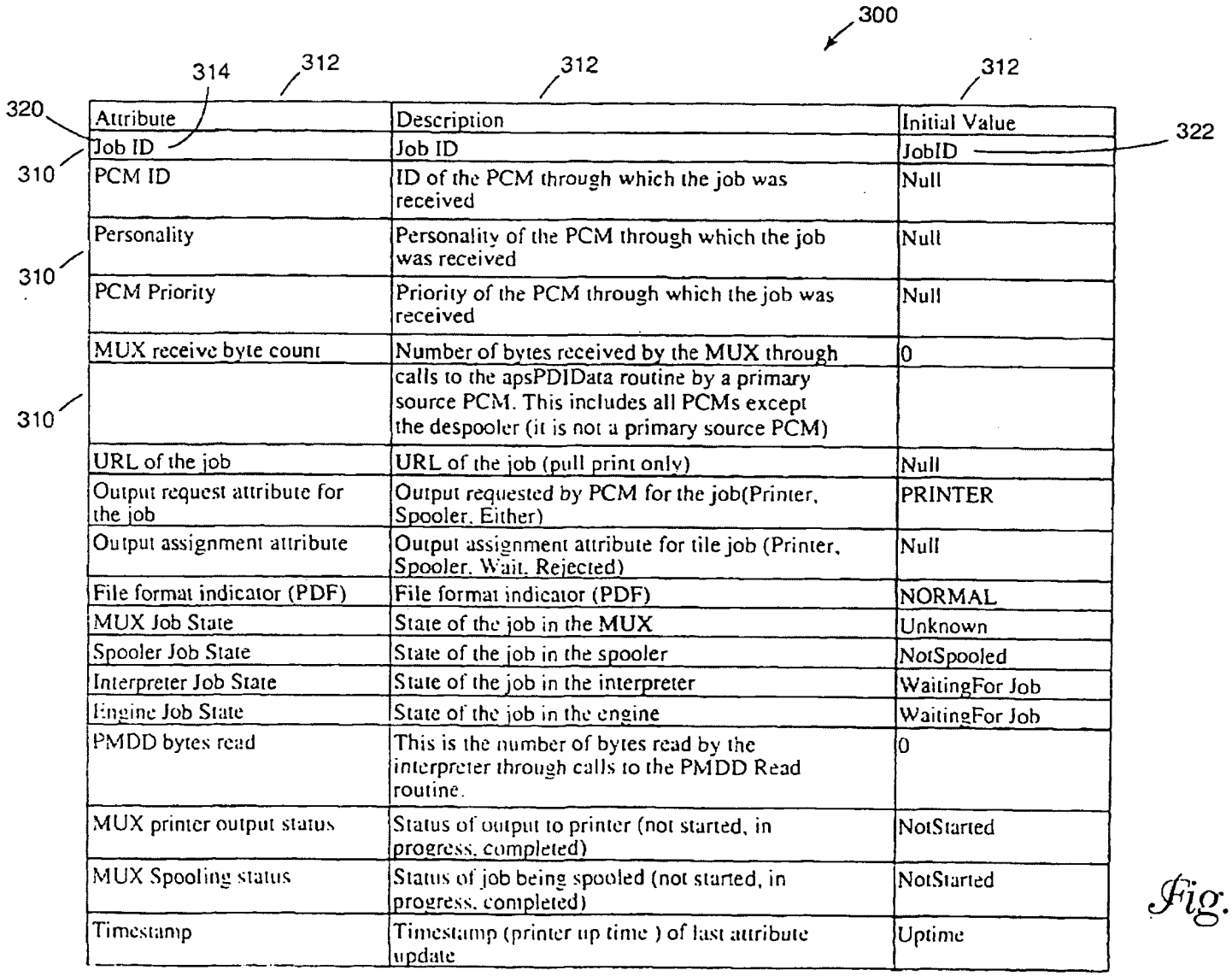

220
Engine
226
Job Control
230
Pipeline
232
Op Panel
234
Page Processing callback
Job Monitor Component
208
JM Task
210
200
Cancel message
252
Job Complete callback
250
Get /Set attributes
240
Pull Print
236
Spooler
228
MUX
224
Web Pages
222
Cancel Job Message
List jobs
List jobs callback
252
220
Call Interface
Message Interface
Component - square corner solid line
Task - round corner dashed line

Fig. 2



Attribute	Description	Initial Value
Job ID	Job ID	JobID
PCM ID	ID of the PCM through which the job was received	Null
Personality	Personality of the PCM through which the job was received	Null
PCM Priority	Priority of the PCM through which the job was received	Null
MUX receive byte count	Number of bytes received by the MUX through calls to the apsPDIData routine by a primary source PCM. This includes all PCMs except the despooler (it is not a primary source PCM)	0
URL of the job	URL of the job (pull print only)	Null
Output request attribute for the job	Output requested by PCM for the job(Printer, Spooler, Either)	PRINTER
Output assignment attribute	Output assignment attribute for tile job (Printer, Spooler, Wait, Rejected)	Null
File format indicator (PDF)	File format indicator (PDF)	NORMAL
MUX Job State	State of the job in the MUX	Unknown
Spooler Job State	State of the job in the spooler	NotSpooled
Interpreter Job State	State of the job in the interpreter	WaitingFor Job
Engine Job State	State of the job in the engine	WaitingFor Job
PMDD bytes read	This is the number of bytes read by the interpreter through calls to the PMDD Read routine.	0
MUX printer output status	Status of output to printer (not started, in progress, completed)	NotStarted
MUX Spooling status	Status of job being spooled (not started, in progress, completed)	NotStarted
Timestamp	Timestamp (printer up time) of last attribute update	Uptime

Fig. 3

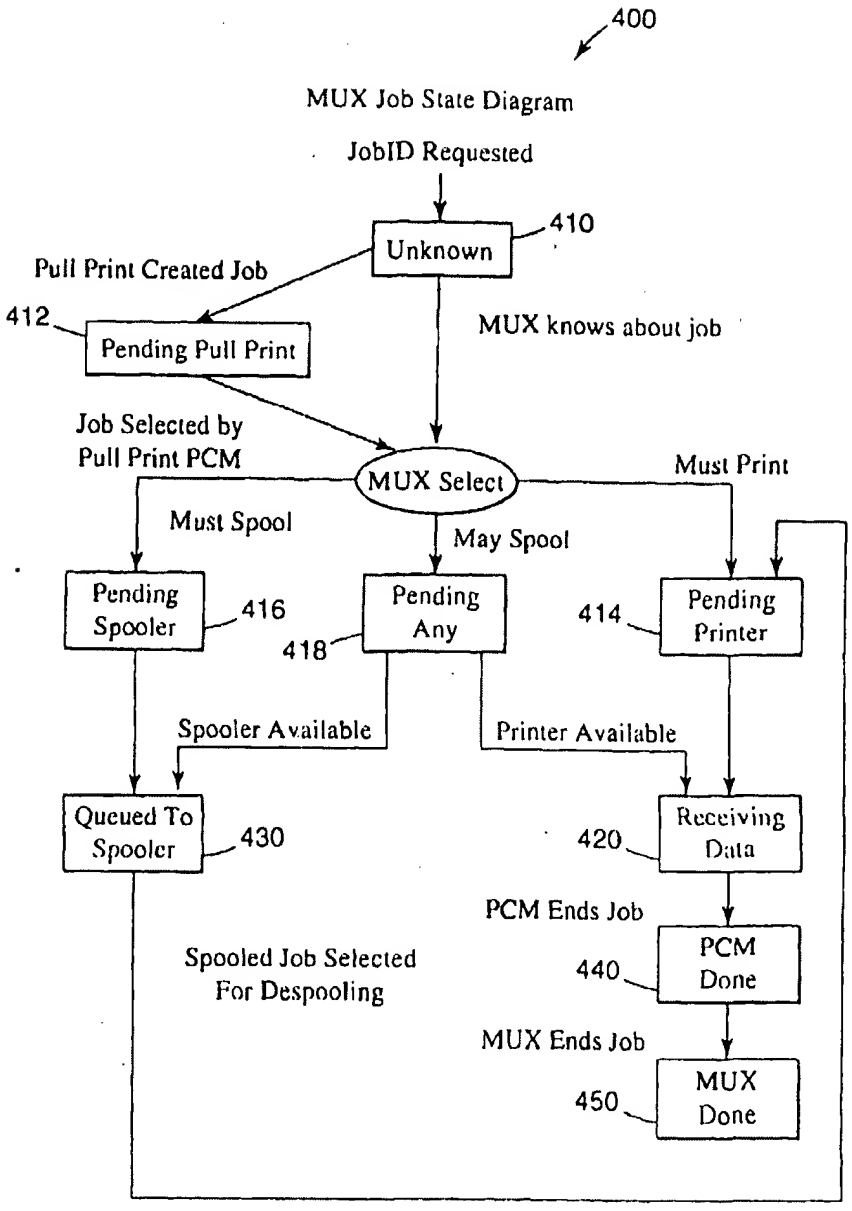

400
MUX Job State Diagram
JobID Requested
Unknown
410
Pull Print Created Job
412
Pending Pull Print
MUX knows about job
Job Selected by
Pull Print PCM
MUX Select
Must Print
Must Spool
May Spool
Pending
Spooler
416
Pending
Any
418
Pending
Printer
414
Spooler Available
Printer Available
Queued To
Spooler
430
Receiving
Data
420
PCM Ends Job
PCM
Done
440
Spooled Job Selected
For Despooling
MUX Ends Job
MUX
Done
450

Fig. 4

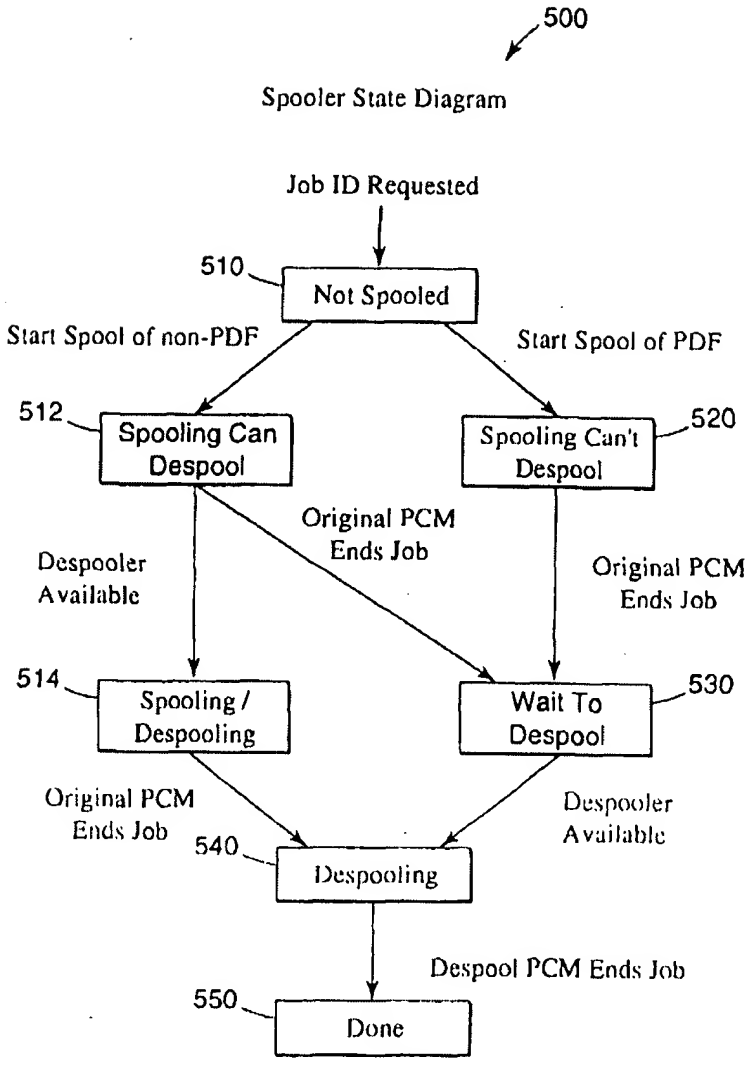

500
Spooler State Diagram
Job ID Requested
510
Not Spooled
Start Spool of non-PDF
Start Spool of PDF
512
Spooling Can Despool
520
Spooling Can't Despool
Original PCM Ends Job
Despooler Available
Original PCM Ends Job
514
Spooling / Despooling
530
Wait To Despool
Original PCM Ends Job
Despooler Available
540
Despooling
Despool PCM Ends Job
550
Done

Fig. 5

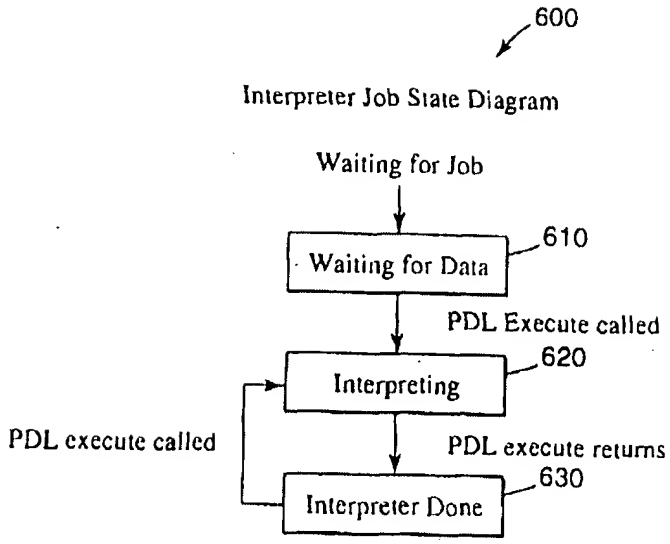

600
Interpreter Job State Diagram
Waiting for Job
Waiting for Data
610
PDL Execute called
Interpreting
620
PDL execute called
PDL execute returns
Interpreter Done
630

Fig. 6

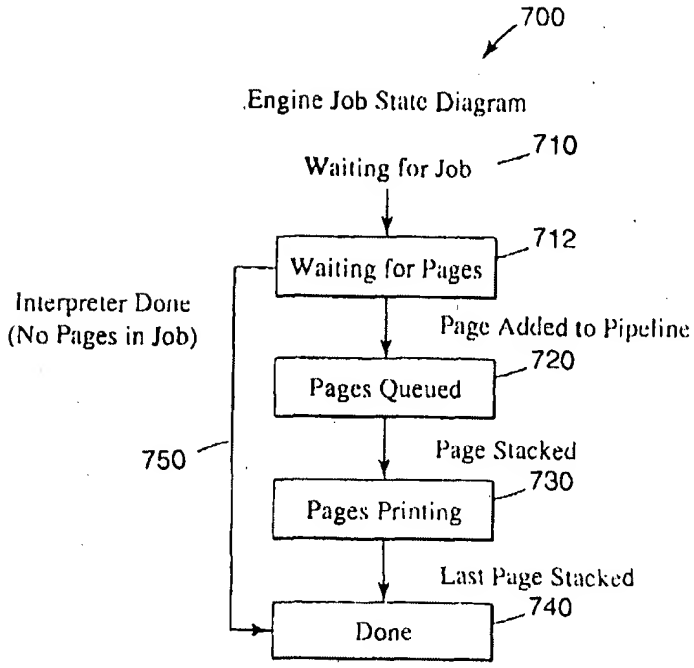

700
Engine Job State Diagram
Waiting for Job
710
Waiting for Pages
712
Interpreter Done
(No Pages in Job)
Page Added to Pipeline
Pages Queued
720
750
Page Stacked
Pages Printing
730
Last Page Stacked
Done
740

Fig. 7

800

814 Process	810 From State	812 To State	820 Changed by
MUX	Unknown	Pending Printer	MUX OS Thread
	Unknown	Pending Any	MUX OS Thread
	Unknown	Pending Spooler	MUX OS Thread
	Unknown	Pending Pull Print	Pull Print wppSubmitJob
	Pending Printer	Receiving Data	MUX OS Thread
	Pending Any	Receiving Data	MUX OS Thread
	Pending Spooler	Queued to Spool	MUX OS Thread
	Pending Any	Queued to Spool	MUX OS Thread
	Queued to Spool	Pending Printer	MUX OS Thread
	Receiving Data	Done	MUX apsPDIEnd
Spooler	Not Spooled	Spooling Can Despool	sp-open
	Spooling Can Despool	Spooling / Despooling	sp-eoj
	Spooling Can Despool	Waiting to Despool	sp-eoj
	Spooling / Despooling	Despooling	Despool PCM
	Not Spooled	Spooling Can't Despool	sp-open
	Spooling Can't Despool	Waiting to Despool	sp-eoj
	Waiting to Despool	Despooling	Despool PCM
	Despooling	Done	Despool PCM
Interpreter	any	any	event announce callback
Engine	any	any	event announce callback

Fig. 8

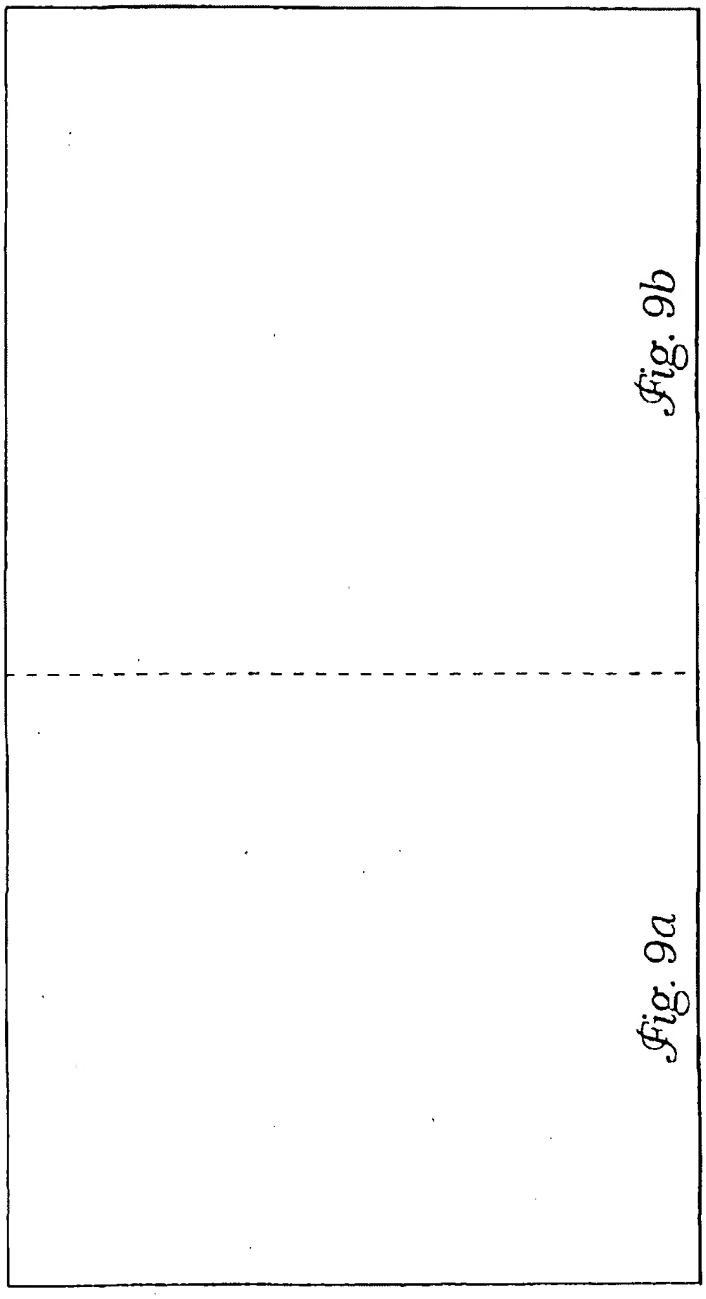


Fig. 9

900

910 Attribute ID	912 Type	Rel.	914 RO/ RW	IPP	SNMP
JM-ATTR JOB-ID	Int	1	RO		
JM-ATTR-PCM-ID	Int (Enum)	1	RW		
JM-ATTR-PCM-PERSONALITY	Int (Enum)	1	RW		
JM-ATTR-PCM-PRIORITY	Int	1	RW		
JM-ATTR SPOOLED-BYTES	Int	1	RW		
JM-ATTR-URL	String	1	RW		
JM-ATTR-OUTPUT-REQUEST	Int (Enum)	1	RW		
JM-ATTR -FILE-FORMAT	Int (Enum)	1	RW		
JM-ATTR-MUX-STATE	Int (Enum)	1	RW		
JM-ATTR-SPOOL-STATE	Int (Enum)	1	RW		
JM-ATTR-INTERPRETER-STATE	Int (Enum)	1	RO		
JM-ATTR-ENGINE-STATE	Int (Enum)	1	RO		
JM-ATTR-JOB-STATE	Int (bitfields or array of int's?)	1	RO	Yes	Yes
JM-ATTR-PAGES-SUBMITTED	Int	1	RO		
JM-ATTR-TOTAL-PAGES IN JOB	Int	1	RO		
JM-ATTR-TOTAL PAGES STACKED	Int	1	RO		
JM-ATTR-RECEIVED-BYTES	Int	1	RW		
JM-ATTR-BYTES-PROCESSED	Int	1	RW		
JM-ATTR-LAST-MODIFIED	Int	1	RO		
JM-ATTR-CANCEL-INITIATOR	Int (Enum)	1	RW	Yes	Yes
JM-ATTR-CANCEL	Int	1	RW		
JM-ATTR-OPEN COUNT	Int	1	RO		
JM-ATTR-COPY-SET	Int	1	RO		
JM-ATTR-COPY-COUNT	Int	1	RO		
JM-ATTR-COLLATE	Int	1	RW		
JM-ATTR-DUPLEX	Int	1	RW		

Fig. 9a

900

920

Notes
Set by JM.
Set by MUX.
Set by MUX.
Set by MUX.
Set by MUX.
Set by WPP.
Set by MUX. Enum will contain PRINTER,SPOOLER, WAIT, REJECTED. Others will be added if needed.
Set by MUX. Enum will contain at least UNKNOWN and PDF. Others will be added as needed.
Set by MUX. Enum will be created to list the possible states.
Set by SPOOLER. Enum will be created to list the possible states.
Set by JM. Enum will be created to list the possible states.
Set by JM. Enum will be created to list the possible states.
Done by JM. Convert from JM-ATTR * STATE attributes
Set by JM. This is the number of pages submitted into the pipeline by the interpreter (incremented once for each page, regardless of the copy count).
Set by JM. This is the total number of pages, including all copies of each page, which have been submitted into the pipeline.
Set by JM. This is the total number of pages that have been stacked by the engine (incremented for each copy of a page).
Set by MUX. The MUX should ensure that this is not double when we are spooling (ie. the bytes should only be counted when they are received from the host, not from the spooler.)
Set by PMDD
Set by JM. This is a timestamp (or count) used to tell if data modified since last checked this value.
Set by requester of cancel. This is who requested the cancel (operator, user, device)
Set by JM (or IPDS?). 0 if not cancelling, 1 if cancel initiated
Set by JM. Not read by others. Used to know how many people have this handle open (have not called destroy yet).
Set by JM. This is the set for the last page stacked if doing collation.
Set by JM. This is the copy count for the last page stacked if doing collation.
True if collated job, false otherwise.
True if job is duplex, false otherwise.

Fig. 9b